Title: And The Winner Is…

Link to Outcomes:

- **Communication** Students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language and the signs, symbols, and terms of the discipline.
- **Connections** Students will explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.
- **Number and Number Relationships** Students will represent numerical relationships in one and two-dimensional graphs.
- **Patterns and Functions** Students will describe and represent relationships with tables, graphs, and rules.
- **Algebra** Students will represent situations and number patterns with tables, graphs, verbal rules and equations, and explore the interrelationship of these representations.

  Students will analyze tables and graphs to identify properties and relationships.
- **Statistics** Students will demonstrate their ability to collect, organize, and display data and will interpret information obtained from displays. They will write reports based on statistical information.
- **Reasoning** Students will demonstrate their ability to reason mathematically. They will make conjectures, gather evidence, and build arguments.
- **Mathematical Disposition** Students will demonstrate a positive attitude toward mathematics and will value and appreciate the role of mathematics in school, culture, and society.

Brief Overview:

In this unit, students will develop and construct a survey to be administered to their peers. Throughout the activity, they will collect and interpret data and represent this data in a graph of their choice. As a conclusion, the students will present their findings in small groups to the class. Then, the teacher will initiate a discussion of the role of statistics and mathematics in our culture and society.

Grade/Level:

Grade 5 or 6

Duration/Length:

This activity should take three class periods. The last period may take the longest.

Prerequisite Knowledge:

- Students must be able to understand the concept of a survey.
- Students should be able to construct a bar and circle graph.
- Students should be able to convert a fraction and decimal to a percent.

Objectives:

- Construct a survey.
- Collect and interpret data.
- Use a tally table to record data.
- Identify an appropriate graph to represent data.
- Transfer information from a tally table to the chosen graph.
- Present findings orally based on data analysis.

Materials/Resources/Printed Materials

Materials per group

- Lined paper
- Graph paper
- Plain white paper
- Pencils/pens
- Colored markers
- Color-coded check sheet (Student Resource #1)

Development/Procedures:

Day 1

- Prior to this activity, the teacher should have chosen the grade level to whom the survey will be administered and should already have spoken to those respective teachers.

- Teacher will review briefly the concept of a survey. Students will give examples of surveys and their use in every day life.

- Teacher will instruct students that they will develop and construct a survey called, "And the Winner Is…" to find out the favorites of their classmates (e.g. Favorite color, Favorite singer, Favorite actress, etc.). Students will begin to brainstorm possible survey questions. Class will vote on the top 10 questions for the document. Teacher Resource #1 is a sample survey.

- After developing questions, students will brainstorm top four answer choices which will be labeled a., b., c., and d.

  Example: My favorite color is _____.
  a. red
  b. blue
  c. green
  d. purple

- Survey should be finalized and ready on Day 2.

Day 2

- At the start of the day, teacher will send a student to deliver the surveys to the chosen classes. These surveys are to be collected before that day's math period begins. They should be bundled in groups of 10 and color-coded.)

- Having received the surveys, teacher will chose groups. (Depending on class size, the groups can be pairs or trios, but each pair or trio is responsible for analyzing and collecting data for one survey question only.) Teacher will assign each group their survey question, and that group retrieves data for their question.

- Each group will receive a bundle of surveys and a color-coded check list. They will tally the surveys and check off the color of that bundle on their check list when they have completed the tally. The group will then pass the bundle on to another group who has not yet completed that bundle. This procedure is to be repeated until all groups have finished recording the data on all bundles. Student Resource #1 is a tally sheet and color-coded check list.

- Once data has been recorded, it should be analyzed and conclusions should be drawn. The group can make a decision about the appropriate graph (e.g. line graphs would not be logical) to use to display its data.

Day 3

- Students will use the information from the previous day to construct a graph based on data analysis. Students will then present their results to the class using oral, written, and graphical methods. Students will make inferences and compare and contrast information. Teacher Resource #2 is a sample graph.

- After all group presentations, teacher will engage students in a discussion identifying the relationship of the activity to real-world math (e.g., surveys used to decide Grammy, Emmy, and Oscar winners; surveys used in the marketing of products; etc.).

Evaluation:

Students can be evaluated as follows:

- group participation and performance (on-task behavior, accepting group role and responsibility).
- accuracy of data collection.
- choice of graph (bar, circle, and pictograph are the obvious choices).
- accuracy of graph construction.
- oral data analysis presentation (use of mathematical language, logic, and reasoning skills).

Extension/Follow Up:

Students may survey another grade level and construct a comparison/contrast analysis. (e.g., fifth grade will survey a sixth grade and a third grade to see the differences in preference). You may incorporate a Venn diagram for this activity.

Students may also compile a chart of the winners in each category and make a graph comparing their margin of victory.

Writing Extension: In their journals, students should write a paragraph (or page for the more advanced students) describing the results of the survey based on the presentations of their classmates and the indications of these results. They should include and define any new mathematical language they encountered through this activity. If your school has a newspaper, the results of the survey could be published. Students could write letters to favorite entertainers informing them that they were chosen by survey.

Authors:

Lynette Jasper
Morningside Elementary
Prince George's County

Gail Kearson-Gough
Franklin Square Elementary
Baltimore City

Sample Tally Sheet **My favorite tennis shoe…**	
Nike	𝍸 𝍸 𝍸
Reebok	𝍸 𝍸
Adidas	𝍸
K-Swiss	𝍸 𝍸 𝍸 𝍸

Color-Coded Check Sheet Directions: Check when you have finished tallying each bundle.	
Red Bundle	
Blue Bundle	
Yellow Bundle	
Green Bundle	
Black Bundle	

Sample Survey

Name_____

Directions: Circle the letter of the choice that best completes the statement. Remember that this survey represents your own personal opinion.

1. My favorite color is _____.
a. red b. blue c. green d. purple

2. My favorite food is_____.
a. pizza b. hamburgers c. chicken d. hot dogs

3. My favorite sport is _____.
a. basketball b. football c. baseball d. soccer

4. My favorite school subject is _____.
a. math b. spelling c. reading d. science

5. My favorite tennis shoe is _____.
a. Nike b. Reebok c. Adidas d. K-Swiss

6. My favorite TV. show is _____.
a. Martin b. Living Single c. Fresh Prince d. The Simpsons

7. My favorite singing group is _____.
a. Immature b. Jodeci c. TLC d. X-scape

8. My favorite female singer _____.
a. Toni Braxton b. Janet Jackson c. Brandi d. Mary J. Blige

9. My favorite female rapper is _____.
a. Queen Latifah b. MC Lyte c. Yo-Yo d. The Brat

10. My favorite male rapper is _____.
a. Snoop Dogg b. Biggie Smalls c. Craig Mack d. Dr. Dre

DATA FOR MY FAVORITE TENNIS SHOE (SAMPLE)